

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Presented) A method for forming a feature in a layer, comprising:

forming a photoresist layer over the layer;

patterning the photoresist layer to form photoresist features with photoresist sidewalls, where the photoresist features have a first critical dimension;

depositing a conformal layer over the sidewalls of the photoresist features to reduce the critical dimensions of the photoresist features, comprising:

a first deposition with a first gas chemistry to form a first deposition plasma; and

a second deposition with a second gas chemistry to form a second deposition plasma, wherein the first gas chemistry is different than the second gas chemistry; and

etching features into the layer, wherein the layer features have a second critical dimension, which is less than the first critical dimension.

2. (Canceled)

3. (Previously Presented) The method, as recited in claim 1, wherein the depositing the conformal layer over the photoresist features further comprises:

a third deposition with the first gas chemistry to form a third deposition plasma; and

a fourth deposition with the second gas chemistry to form a fourth deposition plasma.

4. (Original) The method, as recited in claim 3, wherein the second critical dimension is not greater than 70% of the first critical dimension.

5. (Original) The method, as recited in claim 4, wherein the depositing the conformal layer over the sidewalls forms substantially vertical sidewalls.

6. (Original) The method, as recited in claim 5, wherein the photoresist layer is formed from 248 nm photoresist and the feature has a CD not greater than 140 nm.

7. (Original) The method, as recited in claim 5, further comprising stripping the photoresist mask and deposited conformal layer with a single stripping step.

8. (Original) The method, as recited in claim 7, wherein the stripping the photoresist mask and deposited conformal layer comprises ashing the photoresist mask and deposited layer.

9. (Original) The method, as recited in claim 4, wherein the conformal layer has a sidewall thickness, wherein the conformal layer has substantially the same sidewall thickness from a top to a bottom of the feature.

10. (Original) The method, as recited in claim 4, wherein the conformal layer has a sidewall thickness and a photoresist feature bottom thickness, wherein the sidewall thickness is greater than the photoresist feature bottom thickness.

11. (Original) The method, as recited in claim 1, wherein the second critical dimension is not greater than 70% of the first critical dimension.

12. (Original) The method, as recited in claim 1, wherein the photoresist layer is formed from

248 nm photoresist and the feature has a CD not greater than 140 nm.

13. (Canceled)

14. (Original) A method for forming a feature in a layer, comprising:

forming a photoresist layer over the layer;

patterning the photoresist layer to form photoresist features with photoresist sidewalls, where the photoresist features have a first critical dimension;

depositing a layer over the sidewalls of the photoresist features to reduce the critical dimensions of the photoresist features, wherein the depositing the layer over the sidewalls of the photoresist feature, comprises:

a first deposition with a first gas chemistry to form a first deposition plasma; and

a second deposition with a second gas chemistry to form a second deposition plasma, wherein the first gas chemistry is different than the second gas chemistry; and

etching features into the layer, wherein the layer features have a second critical dimension, wherein the second critical dimension is not greater than 70% of the first critical dimension.

15. (Original) The method, as recited in claim 14, wherein the second critical dimension is not greater than 60% of the first critical dimension.

16. (Original) The method, as recited in claim 14, wherein the depositing the layer over the photoresist features further comprises:

a third deposition with the first gas chemistry to form a third deposition plasma; and

a fourth deposition with the second gas chemistry to form a fourth deposition plasma.

17. (Original) The method, as recited in claim 16, wherein the depositing the layer over the sidewalls forms substantially vertical sidewalls.

18-20. (Canceled)

21. (Previously Presented) A method of forming a plurality of conductive lines, comprising:

placing a conductive layer over a substrate;

forming a mask, wherein the mask defines a plurality of mask lines with mask spaces between the mask lines, wherein the mask spaces have a width and wherein the mask lines have a width and have sidewalls;

placing the substrate in a plasma processing chamber

depositing a conformal layer over the sidewalls of the mask, while the substrate is in the plasma processing chamber, wherein the depositing the conformal layer provides a portion of the bottom of the via without deposited conformal layer;

etching the conductive layer through the mask to form conductive lines and spaces between the conductive lines, while the substrate is in the plasma processing chamber, wherein the conductive lines have a width and the spaces between the conductive line have widths, wherein the widths of the spaces between the conductive lines is less than the widths of the mask spaces, and wherein the widths of the conductive lines is greater than the widths of the line masks.

22. (Original) The method, as recited in claim 21, wherein a ratio of the widths of the mask lines to the widths of the mask spaces is less than 1:1 and wherein a ratio of the widths of the conductive lines to the widths of the spaces between the conductive lines is not less than 1:1.

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23. (Original) The method, as recited in claim 21, wherein a ratio of the widths of the mask lines to the widths of the mask spaces is less than 1:1 and wherein a ratio of the widths of the conductive lines to the widths of the spaces between the conductive lines is greater than 1:1.

24. (Previously Presented) A method of forming a plurality of conductive lines, comprising:

placing a conductive layer over a substrate;

forming a mask, wherein the mask defines a plurality of mask lines with mask spaces between the mask lines, wherein the mask spaces have a width and wherein the mask lines have a width and have sidewalls;

placing the substrate in a plasma processing chamber

depositing a conformal layer over the sidewalls of the mask, while the substrate is in the plasma processing chamber;

etching the conductive layer through the mask to form conductive lines and spaces between the conductive lines, while the substrate is in the plasma processing chamber, wherein the conductive lines have a width and the spaces between the conductive line have widths, wherein the widths of the spaces between the conductive lines is less than the widths of the mask spaces, and wherein the widths of the conductive lines is greater than the widths of the line masks, wherein the widths of the mask spaces is more than 50% greater than the widths of the spaces between the conductive lines.

25. (Previously Presented) The method, as recited in claim 21, further comprising etching the conformal layer with a first etch recipe, wherein the etching of the conductive layer uses a second etch recipe, which is different than the first etch recipe.

26. (Original) A semiconductor device formed by the method of claim 21.

27. (Previously Presented) The method, as recited in claim 21, further comprising stripping the conformal layer and mask with a single stripping step, while the substrate is in the plasma processing chamber.

28. (Canceled)

29. (Previously Presented) The method, as recited in claim 1, further comprising placing the layer in a plasma processing chamber, wherein the depositing the conformal layer and etching features are performed in the plasma processing chamber.

30. (Previously Presented) The method, as recited in claim 29, further comprising stripping the conformal layer and photoresist layer with a single stripping step, while the layer is in the plasma processing chamber.

31. (Previously Presented) The method, as recited in claim 1, wherein the depositing the conformal layer provides a portion of the bottom of the via without deposited conformal layer.

32. (Previously Presented) The method, as recited in claim 14, further comprising placing the layer in a plasma processing chamber, wherein the depositing the layer over the sidewalls of the photoresist features and etching features are performed in the plasma processing chamber.

33. (Previously Presented) The method, as recited in claim 32, further comprising stripping the deposited layer and photoresist layer with a single stripping step, while the layer is in the plasma processing chamber.

34. (Previously Presented) The method, as recited in claim 14, wherein the depositing the layer provides a portion of the bottom of the via without deposited conformal layer.

35. (Previously Presented) A method for forming a feature in an etch layer over a substrate, comprising:

forming a photoresist layer over the etch layer;

patterning the photoresist layer to form photoresist features with photoresist sidewalls, where the photoresist features have a first critical dimension;

placing the substrate in a plasma processing chamber;

depositing a conformal layer over the sidewalls of the photoresist features to reduce the critical dimensions of the photoresist features, while the substrate is in the plasma processing chamber; and

etching features into the etch layer, while the substrate is in the plasma processing chamber wherein the layer features have a second critical dimension, which is less than the first critical dimension.

36. (Previously Presented) The method, as recited in claim 35, further comprising stripping the conformal layer and photoresist layer with a single stripping step, while the substrate is in the plasma processing chamber.

37. (Previously Presented) The method, as recited in claim 35, wherein the depositing the conformal layer provides a portion of the bottom of the via without deposited conformal layer.

38. (Previously Presented) The method, as recited in claim 1, wherein the first deposition is

selected from the group of a bread-loafing deposition a faceting deposition and the second deposition is selected from the group of the group of a bread loafing deposition and a faceting deposition, where the first deposition and second deposition are not both bread loafing depositions and are not both faceting depositions..

39. (Previously Presented) The method, as recited in claim 14, wherein the first deposition is selected from the group of a bread-loafing deposition a faceting deposition and the second deposition is selected from the group of the group of a bread loafing deposition and a faceting deposition, where the first deposition and second deposition are not both bread loafing depositions and are not both faceting depositions..